



Localization of determinants of fertility through measurement adaptations in developing-country settings: The case of Iran

Comment on “Analysis of economic determinants of fertility in Iran: a multilevel approach”

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Abstract

Studies investigating fertility decline in developing countries often adopt measures of determinants of fertility behavior developed based on observations from developed countries, without adapting them to the realities of the study setting. As a result, their findings are usually invalid, anomalous or statistically non-significant. This commentary draws on the research article by Moeeni and colleagues, as an exemplary work which has not adapted measures of two key economic determinants of fertility behavior, namely gender inequality and opportunity costs of childbearing, to the realities of Iran's economy. Measurement adaptations that can improve the study are discussed.

Keywords: Localization, Fertility Behavior, Gender Equality, Population Policy, Measurement, Iran

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Low fertility and shift in population policy in Iran

Fertility levels have fallen drastically to below replacement level (below two children per woman required to maintain the population) in most Western industrialized countries. A growing number of developing countries, including Iran, have also mirrored this trend (1). Over the past decade, the fertility rate has remained low in Iran. A below replacement total fertility rate (the average number of children per woman), observed initially in 2000 at 1.98 children per woman in Iran's population (2), has been declining since then. The current national total fertility rate is estimated at 1.6 children per woman, based on 2011 household census data (3). In fact, six provinces have a rate under 1.5 children with the rates for twenty out of thirty one provinces less than two children.

The persistent low fertility has become an increasing concern for countries with low fertility, as it leads to rapidly ageing populations, a declining labor force, and smaller overall population size. As a result, increasing attention is being paid to policies to reduce the social and economic burdens of the negative consequences of low fertility. One policy strategy is to focus on raising fertility rates so that a larger number of younger, productive members of the population would be available to balance the increasing numbers of older people and promote economic development. As a timely example, one can refer to the recent shift in Iran's population policy toward a pronatalist population and family policy. The success of any policy attempts to raise fertility levels relies on improving the understanding of *determinants* of low fertility, and identifying subgroups of women with low and very low fertility levels.

Iranian fertility studies: an appraisal

A wide range of theoretical approaches have been developed

to explain *determinants* of low fertility in Western industrialized countries [for a review, see (4,5)]. For example, they link low fertility to increasing opportunity costs of childbearing for women (6,7) and women's financial independence (8), inequality in the household gender roles and decision-making (9), and the spread of individualism and emerging alternative forms of family formation (10,11). However, few Iranian fertility studies have systematically examined the determinants of low fertility as done in industrial societies.

The recent Iranian fertility studies can be categorized into two general groups. A first group of studies, being largely descriptive and illustrative, exclusively narrate contextual socio-economic and political conditions that are assumed to be the causes of fertility decline and differentials in Iran (12–14). Reviewing demographic and socio-economic trends, they attribute the rapid decline in fertility after the 1979 Revolution in Iran to mainly structural and aggregate factors, such as the war-induced economic hardships, declining maternal and child mortality, family planning program and population policy, improvement in women's literacy rate and other life standards, and the support of religious leaders. Due to the descriptive nature of these studies, they could not estimate and quantify the relative impact of these likely determinants of fertility. However, the second group of studies have attempted to compensate this shortcoming to some extent by analyzing the relative impact of structural and proximate determinants of fertility behavior and levels (2,15–18). For example, Erfani and McQuillan (2) found that 61% of the reduction in the observed fertility rate in Iran was attributed to contraceptive use, 31% to the postponement of marriage among young population and other 8% to abortion and postpartum infecundability. Among socio-economic structural factors, influencing fertility behavior through

proximate determinates, women's education had the greatest impact on postponing or stopping births in Iran (18–20). Yet, there is limited systematic knowledge on the role of 'economic' factors influencing fertility behavior in Iran. As noted by scholars (21,22), this shortcoming is mostly due to conceptual and methodological difficulties and data limitation in measuring economic determinants of fertility. A recently published article, entitled "Analysis of economic determinants of fertility in Iran: a multilevel approach" by Moeeni and colleagues (23), is a new attempt at closing this gap in the Iranian literature.

Applying a multi-level analytical strategy, Moeeni and colleagues (23) investigated the effect of selected economic factors, at the household and provincial levels, on the number of household's living children. At the household level, they found negative relationship between household's total and educational expenditures and the spouses' literacy. At the provincial level, authors tried to examine the impact of gender inequality, as a proxy for spousal bargaining power, on the number of children. Authors adopted benchmarking tools, introduced by World Economic Forum, to choose female economic participation and opportunity, educational attainment, political empowerment, polygamy rate and unmet needs for family planning as indices of gender gap in Iran. In addition to the fact that the validity of gender gap as a proxy for spousal bargaining power remains questionable to the reader, authors were expected to explain the conceptual and methodological rationales behind choosing the indices of "gender gap". The study's multivariate results showed no significant effect of female economic and political participations and wage on the number of living children, despite the fact that these are three key economic determinants of fertility in this research article. Moreover, based on the observed negative effect of the polygamy rate, unmet needs for family planning and male-to-female ratios of highly educated workers (three almost non-economic factors), authors draw an inapt economic conclusion as "The lower the household's wife's gains bargaining power, the more is the number of her children" (p.141). It is this finding that I wish to focus on in this commentary.

A need to adapt measures of economic determinants of fertility to developing-country settings

According to population economic theories, low fertility is largely a function of economic insecurity, increasing opportunity costs of childbearing for women (6,7), and increasing women's financial independence (8) through improved education and greater work participation. The economic independence of women reduces the gains from marriage based on traditional gender division of labor in the family, where women engage mostly in childbearing and household works, and increases childbearing costs. This in turn limits women's fertility level.

Such economic theoretical explanations of low fertility have been largely developed based on observations of developed-country settings, where the female employment rate is as high as (or close to) the male rate, hence the mother should spend a high time input to produce a child. Researchers applying such a theoretical explanation of low fertility to a context in *developing* countries should be aware of two

important conceptual and methodological issues. First, in many developing countries, including Iran, a small portion of women are employed. In the case of Iran, for instance, the result of 2011 national census revealed that only 13% of women aged 15 to 64 (working-age population) were economically active in informal occupations and paid employment (24). Moreover, the conditions of employment are different from those assumed in the standard economic models discussed above. That is, a large portion of employed women in developing countries, including Iran, work in agricultural jobs in rural areas or informal occupations in urban areas, which are not usually competitors to women time for childbearing and rearing. The combination of childrearing and agricultural works or working in informal jobs is common in many developing countries, allowing child-rearing to be done alongside labor force participation. Second, women's perception of 'gender equality' in the family in developing countries can be different from those assumed in the standard economic models. The indices of gender equity in a developed economy are largely materialistic, objective indicators, such as paid-income differences with spouse, hours of work, childcare costs, and employment in formal sectors, which cannot be automatically applied to agricultural or informal economy in developing-country settings.

For example, in a context like Iran, where 30% of young adult women aged 20-34 have post-secondary education (24) and are largely unemployed due to the scarcity of overall job opportunities in the country, instead of focusing on women's economic participation as a competitor to reproduction, it is more plausible to choose women's 'employment aspiration' as a 'perceived' economic determinant of low fertility rather than women's 'employment' and 'income'. Evidence shows that a highly educated and unemployed bride is more likely to postpone childbearing and delay transition to the motherhood, with the aspiration of finding a job in the future (25,26). Finally, researchers conducting a research about developing countries should note that 'gender equity' is a context bonded concept, which is required to be measured by valid indicators reflecting true aspects of the concept in the study context. Therefore, we need to avoid blindly adopting pre-existing indices developed based on observations of developed countries, which often result in non-significant or anomalous research findings for a developing-country context.

Ethical issues

Not applicable.

Competing interests

Author declares that he has no competing interests.

Author's contribution

AE is the single author of the manuscript.

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